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THE Bureau of Economic and Business Research of the Temple University School of Business and Public Administration was organized to provide a vehicle for stimulating and coordinating analytical studies. Its primary objectives include (1) service to the alumni as well as to the faculty and students of the University by bringing to their attention pertinent developments in the world of business, and (2) service to business and government by making contributions to the solution of specific problems. To this end, the Bureau both carries on specialized research and publishes quarterly the **Economics and Business Bulletin**, containing some of the significant results of its current studies.

The reader's appraisal of the **Bulletin** and comments upon it are solicited. The Bureau also will appreciate receiving suggestions and requests for particular studies.

The opinions and views expressed in the articles contained in this **Bulletin** are those of the writers and cannot be construed as the official opinions or policies of the School of Business.

Work Measurement in the Department of Defense — Its Requirements

by SAMUEL M. WILSON*

This article is the second in the series of "Work Measurement in the United States Department of Defense." Emphasis is given the organizational and other preliminary requirements which have been necessary in developing and using work measurement in the military services.

CAREFUL study of the problem of work measurement makes it apparent that the essential requirements in designing a system for that purpose include: (1) establishing an internal organization, and (2) developing the technical aspects of the systems.[1]

ORGANIZATION AND STRUCTURE

Organizational requirements are a necessary consideration if the function is to be successful, because work measurement programs must be properly placed within the existing structure. Furthermore, this management device must be properly integrated with other management techniques if it is to be useful. Thus, the first essential of establishing a system is detailed knowledge of the lines of authority and functional responsibility. Accordingly, consideration is here given to the organization and structure of the Federal Government with specific emphasis on the Department of Defense.

Executive Office of the President

In 1946 the Bureau of the Budget began to emphasize work measurement systems. The Management Improvement Branch of the Administrative Management Division of the Bureau of the Budget was delegated the authority to establish the fundamental requirements of a work measurement system and to promote its use throughout the government.

Three years later, in 1949, during a reorganization in the Bureau of the Budget, the Management Improvement Branch was replaced by the Office of Management and Organization, the function of which was to assist all operating offices of the Bureau. The Management and Organization Office does not concentrate on work measurement but supports and assists governmental agencies and departments in their use of the various techniques and tools necessary in the preparation and justification of their budgets.

The Bureau of the Budget emphasizes work measurement as an instrument to determine and justify manpower dollars; however, it is not now actively engaged in developing and implementing work-measurement programs as it was during the period from 1946 to 1948. It functions as a coordinator and stresses the

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The writer wishes to acknowledge the assistance of the many government employees who have been of vital aid in the development of this article. The list is too long to present here in full, but the assistance of James F. Barie and Frank Krause, of the Office of the Director, Bureau of the Budget; Major General E. C. Lynch and Ralph P. Sollett, of the Office of the Assistant Secretary of Defense (Manpower and Personnel); Lieutenant Commander Robert P. Benz and Nathan Schacter, of the Office of the Navy, Management Engineer, Dr. Paul D. Gard, of the Office of the Assistant Chief of Staff, G-1 Department of the Army; Lieutenant Colonel Warren K. Watson and Major Dale R. Fleming, of the Office of the Deputy for Manpower and Organization, Department of the Air Force; William Gill, Management Consultant, Department of the Army; and Colonel A. J. Roose, Supply Department Marine Corps; was of particular value and is gratefully acknowledged.

[1]See Samuel M. Wilson, "Work Measurement in the Department of Defense — Its Background and Beginning," **Economics and Business Bulletin,** Vol. 8, No. 1, September, 1955, p. 3.

use of work measurement in budget preparation and in appraising staffing requirements during the examination of the budget. These staffing appraisals are necessary in fulfilling the requirements of Section 71, Bureau of the Budget, Circular Letter, Number A-11 of May, 1949. The Budget Bureau's examiners of work-measurement data are skilled in their interpretation and use; therefore, the work-measurement programs of all agencies and departments are scrutinized during the examination and justification of their budgets.

The Management and Organization Office and its predecessor, the Administrative Management Division of the Bureau of the Budget, have been two of the most significant internal mechanisms which have been established to improve management and increase efficiency throughout the Federal Government. Their main responsibility has been to conduct studies of the overall organization and administration of the government, to study specific administrative and organizational problems, to encourage and assist in making improvements in particular departments and agencies, and to promote better use of personnel by encouraging the use of sound measurement programs which help management to perform its functions.[2]

Top Level Organization Department of Defense

In November 1950, the Office of the Assistant Secretary of Defense (Manpower and Personnel) was established to integrate all manpower functions of the Department of Defense.[3] Following its establishment, it was requested that each service create an organization and designate the individual to have responsibility for approving military and civilian manpower requirements and the service's manpower utilization program. At the same time, the armed services were asked to furnish statements of procedures and standards used in approving requests for additional military and civilian manpower, including an indication of the programs conducted to assure the effective manpower utilization. This was the first major step in setting up the organizational requirements for furnishing the more detailed justifications of the armed services manpower requirements, allocations, and utilization. In addition, more specific responsibliity was delegated to the armed services to compute and justify their manpower requirements.[4]

Department of Defense Work Measurement Policy

The basic work measurement policy of the Department of Defense was formulated and promulgated by the Deputy Secretary of Defense on August 22, 1952.[5] A formal statement of the policy follows:[6]

> **4. Department of Defense Work Measurement Policy**
>
> A. The performance of elements of the Department of Defense will be measured or accounted for, wherever practicable, on a systematic basis, in terms of one or both of the following:
>
> (1) Manpower (man-hours or man-months) actually used for a given workload compared to the manpower that would have been required at established performance standards.
>
> (2) Dollar costs actually incurred for accomplishing a given workload compared to the dollar cost that would have been required at established performance standards. (The true dollar costs, direct and indirect, of personal services, materials, and equipment should be used when such costs can feasibly be determined

[2]Bernard L. Gladieu, "Administrative Planning in the Federal Government," **Processes of Organization and Management**, Edited by Catheryn Seckler-Hudson, Public Affairs Press, Washington, D. C., 1948, p. 177.

[3]Assistant Secretary of Defense, "Manpower and Personnel Controls in the Department of Defense," Department of Defense, Washington 25, D. C., May 22, 1951, p. 1.

[4]**Ibid**, p. 3.

[5]Department of Defense Directive, "Management Improvement Program: Work Measurement Systems and Standards of Performance," Department of Defense, Washington 25, D. C., August 21, 1952, Enclosure 1, pp. 2 and 3.

[6]**Loc. cit.**

under the accounting systems).

B. As determinations are made to extend Work Measurement Systems to a particular installation or function, each Military Department (or commands thereof when authorized) will:

(1) Prescribe the methods to be used for measuring performance.

(2) Determine the degree of detail and scope of reporting systems and prescribe necessary reporting procedures.

(3) Determine the extent to which requirements for measuring performance will be integrated with one or more existing systems as performance budgeting, accounting, cost controls based on accurate and timely accounting reports, and program review and analysis.

(4) Authorize and supervise the establishment of performance standards at the installation level.

(5) Establish command-wide and Department-wide performance standards with which to evaluate local standards and for other appropriate uses.

Organization In The Department Of The Army

Basic Responsibilities. The Assistant Secretary of the Army (Manpower and Personnel) is responsible for the approval of military and civilian manpower requirements for the Army. The Assistant Chief of Staff, G-1, in coordination with the Assistant Chief of Staff, G-3, has the responsibility for determining military manpower requirements, allocation, and distribution. Civilian personnel are controlled by the Budget Division, Office of Comptroller of the Army. The Management Division, also under the Office of the Comptroller, exercises overall direction and reviews manpower utilization survey activities throughout the Army establishments, including those of Army Area Commanders and the Chiefs of the Technical and Administrative Services.[7]

Specific Responsibility for Work Measurement. The assignment of "command" responsibility at any level in the Army carries with it the responsibility that those who command will analyze the performance effectiveness of their subordinates, individually and in groups. The responsibility for work measurement[8] is, therefore, a primary duty of all managerial (command) personnel in the Army. Thus, every person having command responsibility may be required to participate in the operation of the work-measurement system and to use the system for prescribed purposes.

The Comptroller of the Army, in collaboration with the Chief of Staff, Vice Chief of Staff, Deputies and Assistant Chiefs of Staff, G-1 and G-4, was made directly responsible for the initial and continuing development of the work-measurement system.[9] In addition to this overall responsibility for the system, the Comptroller of the Army was given the responsibility for supervising the installations of the work-measurement system in the Continental Armies, Military District of Washington, D. C., Special Staff units of the Department of the Army, United States Military Academy, and the Army Audit Agency.

The Assistant Chief of Staff, G-1, was given the responsibility for installing the system in the administrative staffs and administrative services. The assistant Chief of Staff, G-4, was responsible for installing the system in the technical staffs and technical services of the Army, including the civil works functions of the Corps of Engineers. Commanding Generals of Continental Armies and Military District of Washington, D. C., and the Chiefs of Technical and Administrative Services were directed to supervise the installation of the work-measurement system at the field installa-

[7] Assistant Secretary of Defense, letter, "Manpower and Personnel Controls in the Department of Defense," Department of Defense, Washington, D. C., May 22, 1951, pp. 4 and 5.

[8] In the Army work measurement is called "Performance Analysis."

[9] Office of Comptroller of the Army, Management Division, memorandum for Comptroller of the Army, Plans and Policy Office, "Proposed Plan and Schedule of a Project for Work Measurement and Manpower Staffing Guides and Reporting," Department of the Army, Washington 25, D. C., October 3, 1951, p. 3.

tions under their commands and to apply the provisions of the system to their headquarters' offices. The Commanders of all Class I and Class II installations were responsible for applying the system to all the work at their installations.

Generally, in organizations which had a Comptroller's Office, the management division of that office was given the direct responsibility for the work-measurement system. The commanders at all levels delegate the operating responsibilities for the system to the appropriate organizational segment, subject to the provisions of the directives concerning the organizational and functional structure for the Army.

Organization in The Department of The Air Force

The Assistant Secretary of the Air Force (Management) has the responsibility for finance, personnel, and programs which assure coordination of all manpower planning and control functions within the Office of the Secretary of the Air Force. The specific responsibility for the control of manpower requirements, allocation, distribution and utilization for both military and civilian manpower is centralized in one staff organization under the Air Force Deputy Chief of Staff (Operations). This staff is known as the Directorate of Manpower and Organization.[10]

Centralized control over manpower utilization is exercised by the Air Force Deputy Chief of Staff (Operations) through the major installation Air Force Commanders who have manpower survey teams scheduled to inspect and review each Air Force installation at least once each year. The Directorate of Manpower and Organization has overall responsibility for initiating, operating, and maintaining tables of organization, tables of distribution, manpower utilization, and control programs which include the work-measurement and the management-improvement programs. The Inspector General of the Air Force also checks on manpower utilization during his inspections of Air Force activities.

The Deputy Chief of Staff (Personnel) directs personnel operating plans which include personnel procurement, training, promotion, and morale and welfare programs for both military and civilian personnel. The Deputy Chief of Staff (Comptroller) is responsible for the budget program which includes a comprehensive analysis of personnel requirements in terms of numbers and costs. This office also supplies the basic data for evaluating the operating efficiency at all levels of the organization. Coordination among the Deputy Chiefs of Staff, (Operations) (Personnel) and (Comptroller), is considered absolutely essential for the maintenance of a sound manpower control program in the Air Force.

Organization in The Department of The Navy

In his letter of April 4, 1950, to all bureaus and offices of the Navy, the Secretary specifically assigned the policy control for the Navy Department's integrated work-measurement program to the Assistant Secretary of the Navy for Air. The same letter assigned the "staff responsibility" for the work-measurement program to the Navy Management Engineer who had been conducting the nonintegrated work-measurement program since its inception in 1946.

Subsequently, on May 18, 1951, the Secretary of the Navy issued a directive which assigned all duties and responsibilities relating to military and civilian manpower to the Under Secretary of the Navy. This designation of responsibility, however, was subject to the provisions of the laws which had set forth the duties of the Chief of Naval Operations, the Commandant of the

[10]Assistant Secretary of Defense (Manpower and Personnel) "Progress Report—Manpower and Personnel Controls in the Department of Defense," Department of Defense, Washington 25, D. C., August 20, 1951, p. 6.

Marine Corps and the Chief of Naval Personnel.[11]

On April 18, 1952, greater emphasis was placed on work measurement in the Navy Department when the Under Secretary of the Navy directed that the "Navy Shore Establishment Work-Measurement System" be established and used as a basic system of military and civilian manpower control for all personnel in the "working forces" area of the Navy.[12] The Office of the Navy Management Engineer, a staff office under the Under Secretary of the Navy, was again assigned the responsibility for the installation and continuing improvement of this modified system. The Under Secretary of the Navy aided by the information and advice furnished by this office and a work measurement coordinating committee became responsible for the establishment and maintenance of standard rates.

Manpower Control Areas. The Navy Department is composed of two broad areas of manpower control; namely, the naval command areas and management control areas. Figure 1 shows the type of activities or major organization components involved in each area of manpower control. The naval command area is composed of the staff organization required for both the operating and unavailable forces of the Navy. The operating forces of the Navy include the Pacific and Atlantic Fleets, Fleet Marine Forces, any Special Forces, and personnel in the Unified Command organizations of the Navy. The unavailable forces include students, trainees, patients, personnel in the pipeline to and from the operating forces, personnel on temporary duty, and prisoners of war. All personnel in the naval command areas are excluded from the Navy's work-measurement system.

Figure 1 also presents the naval organizations which are included under the management control areas. The work-measurement system is designed to include all personnel involved in the management control areas. As shown in Figure 1, these areas include the thirteen bureaus and offices of the Navy, including the Marine Corps. A further breakdown under the heading, Naval Shore Establishment, Representative "Working Forces" Field Activities shows an example of the type of organizations which are included under the work-measurement program. The approximate number of personnel that were in the working forces in each bureau and office of the Navy in 1952 are shown as follows:[13]

Bureau	Number of Personnel[1]
Bureau of Aeronautics	152,000
Bureau of Ships	152,000
Bureau of Ordinance	67,000
Bureau of Supplies and Accounts	64,000
Marine Corps	52,000
Bureau of Naval Personnel	44,000
Office of Naval Operations	35,000
Bureau of Medicine and Surgery	26,000
Military Sea Transportation Service	19,000
Bureau of Yards and Docks	14,000
Office of Naval Research	5,000
Office of Naval Material	4,000
Executive Office of the Secretary	3,000
Total Working Forces	637,000

[1]Rounded to nearest thousand.

[11]Assistant Secretary of Defense, "Progress —Manpower and Personnel Controls in the Department of Defense," **op. cit.**, p. 5.

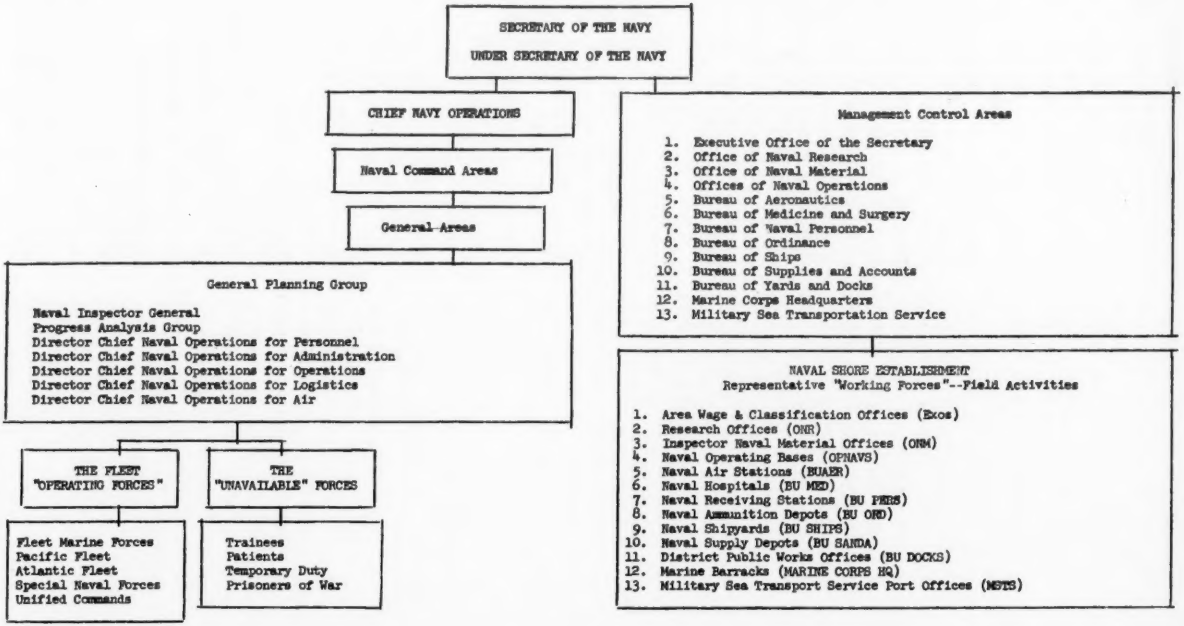
[12]Under Secretary of the Navy's letter, "The Navy Shore Establishment Work Measurement System; establishment of," Department of the Navy, Washington 25, D. C., April 18, 1952, p. 3.

[13]Furnished by the Office of Management Engineer, Navy Department, and based on Third Quarter, Fiscal Year, 1951, Navy Department, Washington 25, D. C.

FIGURE 1

SCOPE OF MANPOWER CONTROL AREAS

(Navy Department)


SECRETARY OF THE NAVY
UNDER SECRETARY OF THE NAVY
CHIEF NAVY OPERATIONS
Naval Command Areas
General Areas
General Planning Group
Naval Inspector General
Progress Analysis Group
Director Chief Naval Operations for Personnel
Director Chief Naval Operations for Administration
Director Chief Naval Operations for Operations
Director Chief Naval Operations for Logistics
Director Chief Naval Operations for Air
THE FLEET "OPERATING FORCES"
THE "UNAVAILABLE" FORCES
Fleet Marine Forces
Pacific Fleet
Atlantic Fleet
Special Naval Forces
Unified Commands
Trainees
Patients
Temporary Duty
Prisoners of War
Management Control Areas
1. Executive Office of the Secretary
2. Office of Naval Research
3. Office of Naval Material
4. Offices of Naval Operations
5. Bureau of Aeronautics
6. Bureau of Medicine and Surgery
7. Bureau of Naval Personnel
8. Bureau of Ordinance
9. Bureau of Ships
10. Bureau of Supplies and Accounts
11. Bureau of Yards and Docks
12. Marine Corps Headquarters
13. Military Sea Transportation Service
NAVAL SHORE ESTABLISHMENT
Representative "Working Forces"--Field Activities
1. Area Wage & Classification Offices (Exos)
2. Research Offices (ONR)
3. Inspector Naval Material Offices (ONM)
4. Naval Operating Bases (OPNAVS)
5. Naval Air Stations (BUAER)
6. Naval Hospitals (BU MED)
7. Naval Receiving Stations (BU PERS)
8. Naval Ammunition Depots (BU ORD)
9. Naval Shipyards (BU SHIPS)
10. Naval Supply Depots (BU SANDA)
11. District Public Works Offices (BU DOCKS)
12. Marine Barracks (MARINE CORPS HQ)
13. Military Sea Transport Service Port Offices (MSTS)

Source: Office of Navy Management Engineer, Department of the Navy, Washington, D. C.

Manpower control, including both the qualitative and quantitative aspects over several hundred thousand personnel included in the naval command areas is provided by the tables of organization covering those areas. Actual operations, maneuvers, and accomplishment of training programs and schedules are the basic yardsticks used to ascertain manpower utilization in these organizations. The personnel requirements of the command areas are initially ascertained by experts in the field of personnel and operations after the organization's functions and missions have been prescribed by the Congress, Secretary of Defense, and Secretary of the Navy. Once the tables of organization have been approved, the personnel requirements for such organizational activities are fixed for a designated period of time.

STAFFING THE ORGANIZATION FOR WORK MEASUREMENT

The success of the work-measurement program and its relationship with the whole organization depends upon the quality of the staff. The selection, maintenance, and training of a qualified and adequate personnel is paramount in the conduct of the program. The personal qualities which are considered to be most desirable in a person selected for a work-measurement staff for the military organizations are: (1) academic training in the specialized fields of business administration and management, statistics, industrial management, industrial engineering, personnel administration, and cost accounting; (2) experience with work measurement and in solving management problems associated with work measurement; (3) imagination in this area; (4) good judgment based on factual analysis; and (5), knowledge of the basic features and the rules and regulations of the military organizations.

A personnel rotation policy which makes transfers from one military station to another practically mandatory within a limited period of time, usually every one to three years, is a limiting factor in placing military personnel in key work-measurement positions where continuity is of great importance. Therefore, the military services have adopted the practice of using both civilian and military personnel for their work-measurement staffs. In this way the civilians provide for the smooth continuity of work-measurement programs and the military personnel furnishes the necessary military knowledge and liaison for conducting a work-measurement system.

Centralization And Decentralization

The question of the degree of authority and responsibility for developing the organizational requirements and directing their use, developing training materials, determining standards, and in using the data has to do with the pros and cons of centralization and decentralization in administration and management. The decisions pertaining to this problem are reflected in the whole organizational requirements and accomplishments of the work-measurement system.

Generally speaking, centralization means a high degree of concentration of authority and responsibility near the top or center of the whole organization. It may be described as a central force similar to the force of gravity which tends to pull the functions toward it. Decentralization is also a type or force. It is centrifugal in nature and causes authority and responsibility to be moved away from rather than drawn toward the common center. Complete centralization on one hand and complete decentralization on the other indicate two extremes, and "every . . . organization must decide for itself, not only in general but in each individual executive situation, to what extent it will centralize or decentralize its organization."[14]

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[14]Elmore Peterson and E. G. Plowman, **Business Organization and Management**, Richard D. Irwin, Inc., Chicago, 1948, p. 278.

Therefore, the course which is followed by most organizations represents some degree of both centralization and decentralization. This type of organization may appropriately be called a centralized-decentralized organization which means that such an organization has an overall organizational framework which is directed by a "common center" but it also provides for freedom to operate within a flexible framework at all management levels.

All of the military services have employed different degrees of the above concept of centralization and decentralization in formulating the organizational structure and operating requirements of work measurement. The Army and Air Force have proceeded on a more decentralized basis than the Navy in the development, operation, and use of their work-measurement systems. The Air Force and Army, for instance, have only recently become actively interested in integrating the work-measurement systems. They have also permitted each activity to establish its standard rates, evaluate its manpower utilization, and determine its manpower requirements without the use of service-wide standard rates.

The Navy, on the other hand, has centralized the work-measurement function to a greater extent; however, the Navy still retains a large degree of decentralization which promotes interest and flexibility in the development, operation, and use of its work-measurement systems. Work-measurement responsibilities are centralized in the Office of the Navy Management Engineer at the secretary's level. This office is responsible for developing and promulgating Navy-wide work-measurement systems with uniform terminology, instructions, procedures, standard rates, and techniques for utilizing the system.

Planning The Work-Measurement System

In addition to the determination of the organizational needs, other essential requirements in designing and developing a work-measurement system before it was ready for implementation were found to be: (1) determining the type of system to be used; (2) deciding whether to standardize the work prior to establishing a system; (3) selecting and defining the functional areas for work measurement; (4) selecting and defining the functions, sub-functions and operations; (5) determining and defining the work units; and (6) deciding on the time unit. The remainder of this article presents a discussion of how the military services have dealt with each of these requirements.

DETERMINING THE TYPE OF WORK MEASUREMENT

There are essentially two broad types of work measurement. The first type is of the industrial engineering type where motion and method analyses are used in conjunction with time studies. Standard times are based on stop-watch readings, on basic standard data, or on more detailed synthetic time data systems such as methods - time - measurement (MTM) and the work-factor system. This industrial engineering approach usually concentrates on setting time standards on groups of tasks, individual tasks, or on the elements and motions which are required to perform those tasks.

The second type of work measurement involves a statistical approach which is based on the collection and analysis of actual performance data over a period of time. This approach may be used to set performance standards for individuals, groups of individuals, or organizational segments which perform similar types of work.

The military services have chosen the statistical type of work measurement for the major part of their systems. It should be recognized, however, that the use of the statistical approach does not preclude the use of industrial engineering procedures.

Standardization

Many authorities on work measurement, including R. D. Morrow and Ralph Barnes, suggest that all operations, methods, work places, materials, tools, and other conditions must be standardized before standards of production are established. Some authorities, including Philip Carroll and Ralph Presgrave, maintain that absolute standardization before time study standards are set is not necessary because it is often feasible to make time studies and use standard rates before the standardization of the operation. Some authorities indicate that standardization also involves the stabilization of overall productive activity and individual operations. This is a requirement seldom obtained over an extended period of time.[15]

Military management found that it was practically impossible to use work measurement if standardization were a prerequisite. First, military activity by its very nature is unstable because it depends upon the attitude of the President and Congress and the world's military situation which is everchanging. Secondly, standard methods of performing jobs would be upset continuously by changes in legislation, demands for improvements, and local or geographical differences. Lastly, the job of standardizing military operations, jobs, and tasks would take so long that work measurement would be held in abeyance indefinitely. Thus, the practical policy in the armed services has been to establish work measurement systems which permitted the flexibility needed to provide for variations from standard conditions, but over a period of time bringing about standardization wherever practical. In fact, it was believed that implementing the work-measurement systems, per se, promoted a great deal of standardization.[16]

Defining The Areas For Work Measurement

A paramount question which was immediately faced in planning a work-measurement system was: How should the work performed by an organization be classified for purposes of work measurement? The answer to this question was related to the subsequent problems of selecting the level for measurement and of determining the work units. However, if a functional work-measurement system were to be developed, the functional areas to be covered had to be decided upon before making the decisions pertaining to subsequent questions. Figure 2 illustrates that the selection of the functions to be measured was a fundamental requirement, for once the functions had been selected those functions could be broken down into subfunctions, operations, tasks, elements, and motions if necessary for work measurement. This further breakdown of a function depended to a great extent on the level at which management desired to start the measurement of work.

The basic considerations in selecting and defining the functional areas for measurement purposes were: (1) determination of what was meant by the functional area by defining the function; (2) consideration of the functions which were measurable in terms of work units that represent tangible things or services produced; (3) elimination of the functional areas where work measurement was not needed or was not to be applied for various reasons, illustrated by the Navy's decision to eliminate all functions in the command areas because such activity was covered by well-designed tables of organization; (4) review of the organization of the various activities for organizational and functional charts which were likely to give a basic functional breakdown of activities being performed; (5) determination of the functions which involved the greatest amount of manpower and, if selective programs were being implemented on a gradual basis, beginning the program

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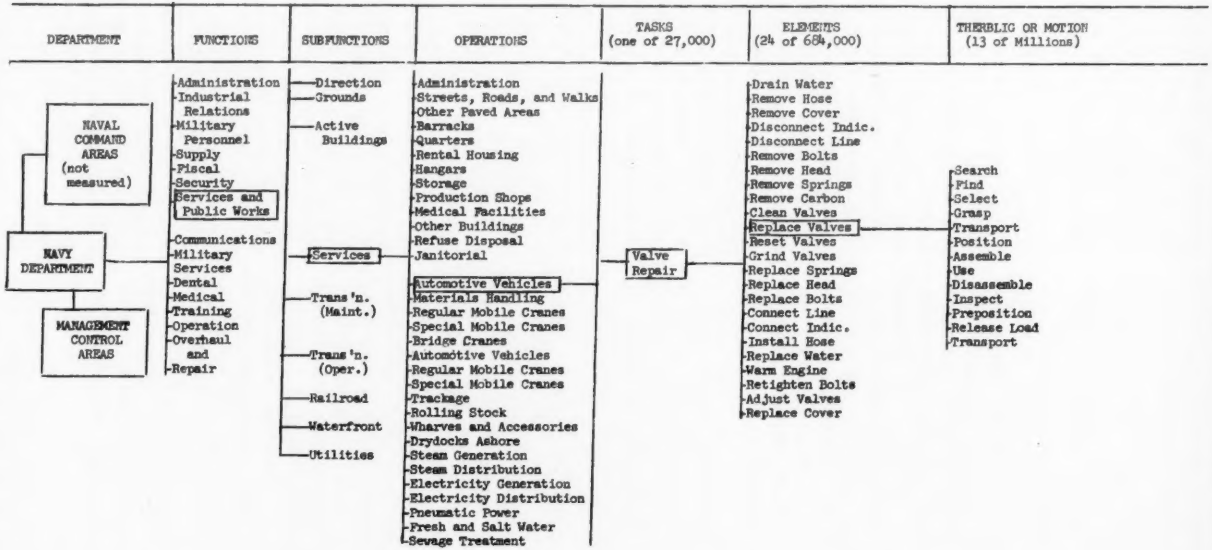
[15] Adam Abruzzi, **Work Measurement, New Principles and Procedures,** Columbia University Press, New York, 1952, p. 33.

[16] Based on discussions with Lieutenant Commander Robert Benz, Office Navy Management Engineer, Navy Department, Washington 25, D. C.

FIGURE 2

SCOPE OF THE WORK MEASUREMENT AREAS AND LEVELS, AS ILLUSTRATED BY THE PUBLIC WORKS FUNCTION, UNITED STATES DEPARTMENT OF THE NAVY



Source: Office of the Navy Management Engineer, Department of the Navy, Washington, D. C.

with those functions which involved the greatest amount of manpower; (6) limitation of the number of functional areas by placing all work performed which related directly to basic activities under common functions; (7) development of the system along functional rather than organizational lines since work-measurement functions had to cross organizational lines as necessary; and (8) recognition that the purpose of the measurement program had to govern the limits of the functional areas. For example, if work measurement was being used to justify budget estimates, it should conform function-wise to the budgetary structure, or the budget structure would have to be realigned or modified to conform to the functional structure of work measurement.[17]

Figure 2 gives an illustration of how much of the work of the Naval Shore Establishment (Management Control Areas) has been classified for the purposes of work measurement. Broad types of work which are performed throughout the Navy are called common services. Most of the fourteen common service functions as shown in Figure 2 are further classified into subfunctions. Each subfunction is also divided into operations. Similarly, each operation may be divided into tasks or jobs, and each task divided again into elements. Finally, the elements could be divided into the basic motions (therbligs) which are required to perform any element of a task.

Some other governmental agencies have started their programs by classifying measurable work according to organizational structure. While definite organizational lines and structure are necessary for the installation and use of work-measurement systems, the unlimited use of the organizational structure to define and classify work areas was considered unsound by the military departments.[18] This type of work-measurement data would not be comparable among organizations performing the same type of work because the organizational structures differ to such an extent that no uniform or standard classification system could be used. Some organizations have centralized while others have decentralized activities. Some organizations must either eliminate or add certain types of work because of local conditions. Thus, planning a system and submitting work-measurement data along organizational lines rather than on a functional basis would present a very confusing picture.

Determining The Work Unit. Expressing work performed in terms of tangible and quantitative terms is the heart of the work-measurement process. Measurement of any type must be expressed in terms of units or combinations of units. The kind of measurement unit and the preciseness of the unit to be selected will depend upon the purpose of the measurement. A single work unit such as "tons handled," "people payrolled" or "people on board" may be used for different levels and kinds of measurement, but such use may not be desirable if detailed and precise measurement of small groups is needed. For example, one overall measurement, such as that needed by a depot commander, may be "total tons handled" compared to "average people on board," over a period of time. If work measurement were to serve only as a broad control technique, the depot commander would have little need for any finer or more detailed classification of units of measurement. However, each organizational segment and level of a depot organization has a separate and specialized type of work to perform. If the depot commander wishes to evaluate the use of manpower in each segment and at each level of his organization, and if the persons in charge of

[17]Bureau of the Budget, **A Work Measurement System, op. cit., p. 8.**

[18]Bureau of the Budget, **Techniques for the Development of a Work Measurement System,** Executive Office of the President, Washington 25, D. C., p. 21.

these segments and organizational levels are going to exercise direct control over their manpower, a more precise work unit for each type of work is necessary.

The following quotation emphasizes the importance of selecting a meaningful unit of measurement.[19]

> When management depends upon such unstable and indefinite things as off-hand judgments, "hunches," and luck, there can be no science and but little progress; but when results accomplished can be measured and compared with a definite standard, then the accomplishments of an executive can be definitely measured . . . with a definite standard or unit of measurement, then and then only can science in management be said to appear.

The purpose of classifying and defining measurable work was to assure that the results of the work-measurement system would be valid and reliable for purposes of managing manpower. The usefulness of the work-measurement system depended to a large extent upon the reliability of the work units selected for a prescribed type of work. Once measurable work has been identified, a representative unit of measurement (work unit) had to be selected. For work measurement purposes, an ideal work unit should have the following fundamental characteristics:

(1) Work units must be identifiable and countable. The work unit must definitely be related to that which is being measured in such a manner that the work performed can be identified and counted. A work unit may be counted on the basis of number, weight, and any other measurement unit which gives an accurate measurement of work performed. Once the work has been classified and the level for statistical measurement has been determined, identifying the work unit which will provide a valid unit for measurement purposes is not usually difficult.

(2) Work units should express the actual volume of work performed and reflect the effort (manpower) required to perform that work. While it is possible to measure the qualitative aspects of the work accomplished, units of measurement for these purposes normally possess the disadvantages that they measure only the quantity of work. This fact, while not necessarily an inherent weakness, should be firmly understood.[20]

(3) Work units should be constant and have a uniform meaning. A work unit should not fluctuate and should retain the same meaning throughout the organization. The unit used for measuring work should measure the same thing consistently over an extended period of time. Only when a work unit presents a constant value may it be used for its maximum benefit in comparing work-measurement results and data for organizations performing the same type of work, as well as in comparing the re-

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[19] William H. Leffingwell and Edwin N. Robinson, **Textbook of Office Management**, McGraw-Hill Book Company, Inc., New York, 1950, p. 528.

[20] For instance, the danger to guard against is illustrated if the work performed is also considered as output produced. For example, assume that in one period of time in an operation such as screening requisitions, twenty-five percent of the requisitions were rejected. If the measurement unit for this operation were the number of requisitions passed for further action (output produced) that unit would not be valid because it would not reflect the actual effort (manpower) involved in producing the work. In this case, the number of requisitions screened which include both those rejected and those passed on for further action would probably be valid because this work unit would reflect the effort required in the performance of the operation. This reasoning does not mean that the number of rejects or the rejection rate for this type of operation is not important, but it does point out the fact that a valid work unit must be ascertained on the basis of the nature of the work being performed. This problem must not be confused with the entirely different problem of rejecting work performed within an operation because of low quality. When work performed in an operation is rejected because of its quality, such rejections should definitely be expressed in work-measurement data by excluding rejected work from units completed. The manpower required to do the rejected work must be counted, otherwise all the work produced could be rejected for poor quality and the work measurement records would still show the work as being produced. To take such a stand on work measurement would place one in an untenable position because an acceptable work unit produced should be the essential work unit for measuring performance. Performance of an excessive amount of nonacceptable work should, therefore, be reflected as poor utilization of manpower.

sults in a single organization at intervals over a period of time.

(4) Work units should reflect homogeneous types of work. Some types of work may require detailed classification on the basis of quality of work performed, change in specifications, work methods, materials used, or any other differences which are reflected in the amount of manpower required per work unit completed. Unless the classes or types of work measured are similar, it will be impossible to use work measurement data for an accurate and valid appraisal of work performed.

Fixed and Variable Types of Workload. Some types of work are fixed or constant, while other types of work are considered to be variable. The difference between these two types is that the amount of fixed work will vary little or not at all from month to month or period to period while the variable type work is subject to frequent change during each period and from one period to the next. The fixed type of work can be counted at the end of one period; thereafter only periodic checks need be made to see whether any changes have occurred. Examples of fixed types of work include such things as number of linear feet of electric lines maintained, number of square yards of paved areas maintained, miles of single railroad tracks maintained, and number of guard posts manned. In each case the amount of the work completed may be the same for each time period reported unless additional facilities or areas are added.

The variable type of work has to be counted, recorded and accumulated on a continual basis throughout the reporting period because the amount of workload is cumulative over the period of time. While a fixed type of work involves a constant workload over time and should require a fixed amount of manpower, variable work reflects a load which fluctuates and should, in turn, require differing amounts of manpower.

Determining the Time Unit

If appropriate work units are to become useful for work measurement purposes they must also be associated with appropriate units of time. Time units, like work units, must be selected on the basis of specific criteria. In addition to the factors necessary for an ideal work unit, a good time unit of measurement should also be divisible, i.e., one which represents a unit or level in a total system of measurement similar to that represented by the measurement unit of a foot in the linear measurement system.

It is considered just as necessary to select an ideal time unit as an appropriate work unit. Attempting to keep records and operate a system of work measurement when using an unreliable and impractical unit of time would become a frustrating task.[21] There are several time units from which management may choose. Time can be counted and recorded in terms of man-years, man-months, man-weeks, man-hours, minutes, or decimal fractions of minutes or fractions of minutes such as a wink or a time-measurement-unit, (tmu). All of these units are convertible into hours and minutes.

When using the basic criteria referred to above in establishing a standard time unit for purposes of a work-measurement system, management further realizes that an important factor is that of defining the intended and specific purpose which the time unit must serve. The level at which the work-measurement data are to be recorded is a prime factor in this determination. If the purpose of the time unit is to measure small fractional parts of an operation such as individual motions or therbligs, a very small time unit must be used. On the other hand, if the purpose of the time unit is to measure time involved in large functional areas which require hundreds of men each month, a broad overall unit

[21] Bureau of the Budget, A Work Measurement System, op. cit., p. 17.

is desirable. Selecting the time unit, therefore, is similar to selecting the work unit in that the criteria set up for a good unit must be thought of in terms of the level where the measurement is to take place.

The three services have agreed that the man-hour generally meets the essential requirements for a good time-unit of measurement at the operational level for this type of work measurement. Even without a work-measurement system, time in the military service is usually recorded at the operational level on the basis of man-days. Under the work measurement systems, time data are collected on a man-hour basis. The man-hours may be converted to man-months and man-years for use at higher levels in the organization for monthly, quarterly, and annual planning and control. Converting man-hours to man-months and man-years is a matter of simple arithmetic.

In determining the standard time unit, an analysis is made of each possible time unit. The basic time units of a man-year, man-month, man-week, and man-day were not satisfactory for the work-measurement program in that they did not conform to the selected criteria. Particularly, the recording of time at the operational level in terms of time units greater than a man-hour would become an impractical requirement because it would involve greater effort, more complicated records, be less accurate, lack necessary detail, and the data would be less usable at the operational level than if the standard unit of man-hour were used.

Any fractional part of a man-hour afforded reasonable precision and met the requirements of other criteria for the operating level. In fact, smaller time units may be necessary for more detailed types of measurement, but a fractional man-hour tended to require more elaborate recording procedures than the armed services were willing to adopt.

Productive and Nonproductive Time. The time unit for work measurement in the military services has been classified on the basis of productive and nonproductive time. Productive time includes all normal time and overtime when a person is in an actual work status whether that person belongs to the organizational unit or is being borrowed temporarily from some other unit. Time required to perform all work related to each defined work operation, subfunction, or function is considered productive. Standby time, time in training which is directly related to the work involved, immediate supervisory time, and apprenticeship time are included in productive time. Productive time only is used for purposes of calculating production and performance rates and for setting standards.

Nonproductive time, which has also been called unavailable time, normally represents the time when a person is receiving pay but is not in actual work status. It includes paid leave, holiday leave, paid sick leave, and time spent on unrelated duties such as military boards. Compensatory leave, terminal leave, absence without leave, brig time, and maternity leave are excluded from both productive and nonproductive time.

The time of personnel who are not subject to manpower ceilings and who are excluded from manpower planning and budgeting are normally reported separately on the work-measurement system reports to avoid accounting for the time of phantom workers.[22]

In applying the time unit, man-hour, for work measurement purposes the time of all employees is recorded and kept separate on the basis of productive and nonproductive time. In addition, all overtime man-hours should be and are usually recorded separately.

CONCLUDING OBSERVATIONS

The Department of Defense and the

[22] U. S. Marine Corps, **Work Measurement, A Technique for Management Improvement,** Navy Department, Washington 25, D. C., March 1953, p. 23.

military services have developed the internal structure and the technical aspects for the promulgation of the work-measurement programs. Definite lines of authority and responsibility and policies have been established. The technical problems of determining such things as work areas, work units, time units, and recording systems are being solved as the various programs are developed and implemented.

The military departments have been making significant improvements in their work-measurement systems regularly since their adoption. By their use the services have been able to improve the utilization of personnel and this has resulted in more effective programming and planning with considerable manpower savings.

Philadelphia Business Index

The September 1950 issue of the Bulletin presented a new index of general businss conditions in the City of Philadelphia. This series, prepared and since maintained by Robert T. Kline, was designed to reflect economic activity exclusively within the boundaries of the city of Philadelphia. It was originally based upon a combination of statistical data representing (1) industrial electric power sales; (2) indexes of employment and employee-hours; (3) department store sales[1]; (4) bank debits[2]; and (5) total construction. Because the method of reporting certain data is under revision by the originating agencies, the change in average weekly hours worked and the monthly change in total employment in the Philadelphia metropolitan area, both prepared by the Department of Research of the Federal Reserve Bank of Philadelphia, have been substituted for (2) above. This is a temporary expedient to maintain continuity of the index. The original data series will be restored after revision.

The following table presents the index for the years 1939 through 1954 and by month from November, 1954.[3]

Index of General Business Conditions, City of Philadelphia, 1947=100

Year	Index	Month	Index
1939	73	1954	
1940	77	Nov.	117.0
1941	96	Dec.	117.4
1942	99	1955	
1943	106	Jan.	117.8
1944	106	Feb.	118.0
1945	98	Mar.	118.2
1946	100	April	120.0
1947	100	May	124.8
1948	103	June	123.1
1949	97	July	127.8
1950	108	Aug.	128.1
1951	111	Sept.	129.9
1952	111	Oct.	128.1p
1953	119	Nov.	128.5e
1954	119		

p=preliminary
e=estimated. Based on currently published weekly indicators.

[1]The revised index of Department Store Sales, published by the Federal Reserve Bank of Philadelphia, has been used in the composite index since October, 1951.

[2]The revised Wholesale Price Index, all commodities, published by the BLS, is used beginning January, 1952 as a deflationary index for the Bank Debit Series.

[3]Kline, Robert T., "A Measurement of General Business Conditions in the City of Philadelphia." **Economics and Business Bulletin**, Temple University School of Business and Public Administration, Philadelphia, Pa., September, 1950, pp. 33-40.

Organizational Problems and Practices of the American Civic Association

by BENJAMIN N. SCHOENFELD*

This article is a description of some of the problems of organizing civic associations. It includes some suggestions for organization and operation which have been successfully applied.

CIVIC association is a group of citizens residing in a given geographical location, whose purpose in organizing is to solve common neighborhood problems in order that their community may become a more pleasant place in which to live. It is not an arm of any political party; not an organ for expressing any particular economic viewpoint; and is not the mouthpiece for any special interest purpose.

PURPOSE OF ORGANIZATION

Some civic associations arise in response to a single problem and their reason for existence centers about the solution of that problem. Thus, if the juvenile delinquency problem of a community has grown beyond the bonds of control, upon solution of the problem by the association which has been organized for that purpose, the justification for the association's existence no longer can be rationalized, and it dies. The unfortunate part of this history is that a valuable chance for having citizen participation in solving community problems has been lost.

On the other hand, some associations arise in response to various community problems, although the spark which may have touched off the drive for the association was a specific problem. Such organizations appear to be founded upon a desire to permanently influence community policy.

Although some organizations begin their existence for a specific purpose of temporary character, they may become permanent if the leadership can readapt the goals. Thus, recently in Philadelphia one civic association, organized for the specific purpose of assisting in the conduct of a tuberculosis campaign, was successful in this program, and then enlarged its horizon to include school curricula, health, and police protection, thereby developing a permanent organization.

One of the greatest dangers in the case of a newly organized civic association is that it may set too high a goal in its original objectives. In most cases the association is insufficiently organized to achieve such goals with the result that when failure occurs, citizen disillusionment is great and future citizen participation in local problems is often lost for long periods, if not forever. Probably the safest procedure is to have the group which is organized for a general purpose attack a problem which is significant, yet capable of solution, in order to build organization know-how and confidence. This selection of the problem is one of the significant roles of the leadership of the organization.

Initial Steps in Organization

There is a sharp difference of opinion among various organizers as to the question of whether the association is the result of the determined efforts of the "socially-conscious minority" in the community, or whether it arises from the various unsolved community problems. Those advocating the former viewpoint are quick to point out that the modern association requires a high degree of sophistication in its organizational phase which can only be provided by the enlightened elements in the community, i.e., progressively-minded professional, business, and labor leaders from all walks of life. On the other hand, there

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are sincere advocates for the principle that the civic association is an outgrowth of the indigenous requirements of a community, and those citizens who are most consciously affected by those problems will, if sufficiently motivated, take the necessary steps to create an organization which will solve these problems.[1]

Probably there is a great deal of validity in both viewpoints. Certainly, it is true that the effective organization of the civic association calls for highly skilled social engineering which derives its force from pressing problems. But advocates of both viewpoints fail to assess the significance and influence of the administrative bureaucracy which is wrestling with such pressing problems. Such bureaucracies often exert remarkable influence upon the citizenry both as to the ends and means of such associations. A clue as to the importance of the originating force lies in the method by which the civic association is founded. Often the organization is based upon the strenuous efforts of a single individual, with altruism or self-interest as the motivating force. On other occasions, the efforts of an interested citizenry may be the driving force in creating the group. Still otherwise, it may be the law-enforcement personnel who may take the initiative to suggest to responsible citizens that a need exists which requires their attention.

Organizational Activities

Some explanation should be made of the initial planning to create the civic association. The person or persons primarily motivated should secure the consent of other reputable individuals as to goals to be adopted by the embryonic organization, so that a **de facto** executive committee is in existence. The attitude of such a group is important and if the group is to put its best foot forward, an attitude of open-mindedness will stand the group in best stead. The composition of this pilot group should be as the membership of the civic association, a cross section of the community. It is not as important that the members of the **de facto** executive committee be the most outstanding citizens as it is that they be responsible and esteemed persons who will actually perform the duties of such an organization.

This group should secure the use of a well-ventilated, well-lighted hall, capable of accommodating an adequately-sized group on an evening which will be suitable to the populace of the community. Care should be taken to select an evening on which there is no competition with other community events, religious holidays, or other programs which might attract the potential audience. The purpose of the meeting should be widely disseminated through churches, social, fraternal, business, labor, and professional groups in the community by the various means of communication; i.e., by press, radio, newspaper, and other appropriate means.

The orginizational meeting should be chaired by a person who will inspire confidence and integrity and who has a sense of timing with an ability to move the meeting at a rate of speed which will avoid either boredom or bedlam. The membership qualifications should be developed at this meeting. A committee for the writing of a constitution and by-laws and a committee on nominations should be appointed.

Special mention should be made of the importance of the work of the nominating committee. The purpose of this committee is to recommend persons for nomination to the offices, and if any, to the board of directors. In this connection it is vital that outstanding citizens be consulted and asked to become candidates for office since other prominent persons cannot be expected to support the newly formed civic association, financially or otherwise, unless they will be able to associate with their own equals or superiors. The rule that first-rate community citizens will

[1]Thus, the movement to organize the Lansdale Civic Association in 1955, arose out of the problems created by the growth of Philadelphia and the accompanying problems of transportation, fire, police, and sanitation.

not serve under a second-rate leadership makes careful selection of candidates by this motivating group an imperative matter.

Selection of Membership

All newly organized civic associations are perplexed by the problem: who shall be asked to join the membership and what, if any, qualifications should be created for qualifying to membership? Since the civic association is to solve community problems, it should reflect that cross section accurately, if possible. If naturalized citizens figure significantly, they should be represented.

An effort should be made to enlist persons of wealth, middle, and working class status, including both self-employed and wage and salary workers. There should be a genuine effort to obtain representation of the various religious faiths in the community. This need not require the selection of clergymen of these faiths. If a person of one of the sought-after categories is an active member of a particular religious faith, this aspect of the cross section may be obtained. Thus, if it is desired to obtain protestant participation, it may be practicable to select for membership a German-American self-employed contractor who may be active on the local joint religious council and within his own protestant church.

A sincere endeavor should be made to inform the leaders of the major political parties in the community, explaining to them that the purpose of the association is not to create an unfavorable climate of opinion concerning either their leadership or party. Often the membership of such political leaders in the association will be an asset to it if any access is required to the legislative policymakers or to the law enforcement authorities.

Thus, as may be seen from the foregoing comment, a cross section of the community is desirable for the membership for two reasons: first, the membership becomes more representative of the sentiments of the citizens in the community; and second, such membership will insure greatest access to all group organizations in the community as well as to government and public officials, thereby achieving maximum results in realizing its goals.

Organizational Motivations

Why do civic associations arise? What purpose do they serve? Why are both money and effort spent to create such bodies? The clue to the answers often lies in the goals of the associations.

Many of these organizations are composed of truly public-spirited citizens who seek to improve the community in which they live. Often these people have investigated conditions in the local schools, police department, municipal budget-planning and spending, and have found either abuses or shortcomings which they feel are sufficiently significant to call for the creation of a civic association.

At other times such organizations may be created to answer a dramatic need. Thus, for example, where a local contractor has failed to adequately fence off excavation work and several youngsters playing in the vicinity subsequently drown, this unfortunate event may generate the drive for an association. On other occasions, the exposure of arbitrariness or corruption of public officials, drastic rezoning of residential communities, pork-barrel lobbying, water supply problems, school board incompetence, tragic fires occasioned by official neglect become the generating causes.

Once having developed the drive to influence community affairs, the civic association may center its emphasis upon one or a combination of activities. The association may be primarily interested in the goals of a particular governmental program, and so it will seek to influence the goals of a specific program in the event the present public policy goals appear to be unsatisfactory.[2]

[2]The Center City School Association of Philadelphia was created to influence public policy with regard to the building of a school site in the center city area to meet the needs of residents in that vicinity whose children were being transported over considerable distances to other schools.

The civic association may become actively interested in the details of the public program, and may play a leading role in influencing the procedures which are to be used. The association may voice its views in the selection of personnel in charge of program planning and enforcement. Thus, often a municipal protective association may be largely influential in crystallizing public policy for the retirement of policy officials concerned with intra-departmental promotion and transfer procedures and the selection of top-policy-determining personnel.

On other occasions the association may be concerned with the institutional requirements and services of public agencies. Most obvious is the possible association interest in school programs and planning and in the educational television plant, capital facilities, and teaching personnel. Other organizations may be concerned with assuring that the most technologically advanced engineering equipment is available in sanitation, fire-fighting, snow removal, crime detection, budget-control, and city planning activities.

The sound planning activities of any civic association must include consideration of programs for the future. In general, this function includes developing a comprehension of present community requirements together with an evaluation of the future of the community, the changing patterns of growth and the potential resources upon which future community growth may be satisfactorily planned. Thus, the school association in planning for future school plant and school personnel requirements must gauge population trends, future school population, and potential tax resources. In developing new urban areas, the civic association must plan for future residential and industrial growth, tax potentials, school requirements, sanitation, policy and health enforcement, transportation facilities, and a host of needs which have become characterized as essential by modern society.

It is desirable for the civic association to develop access to a complete source of information, or if need justifies it, to develop an association library for the use of members of the organization. Adequate records of the past activities of other organizations, the methods of conducting its affairs, and the manner of handling various proposals all are aids to new organizational operations since they provide important data on past activities and provide clues as to methods which in the past have made successful programming possible.

PITFALLS TO BE AVOIDED

Analyses of the operations of many civic associations show that the difficulties faced by these organizations fall into the following well defined categories of problems:

1. Defining goals or objectives;
2. Internal organization and operation;
3. Recruiting and retaining membership;
4. Relationships between the association and governmental agencies or agents;
5. Relationships between the association and the general public.

Defining Goals

The typical problems in the field of goal definition lie in the ambivalent tendencies of either overdefining goals, with great particularity, or of underdefining so that they are too vague. The former tends to lead to overrigidity of planning; the latter, to a weakened program through confusion over objectives. Together with these problems is the complimentary danger that the association may attempt such a grand program that its failure is assured, or the undertaking of such an undefined program that its value is of strict and limited appeal to the citizenry.

The greatest single danger to the effective operation of the association stems from poor internal organizational structure and ill-conceived operating procedures. The importance of selective leadership has been discussed earlier. The liability stemming from the failure to select effective leaders is fatal. Weak

leadership, sporadic attempts to lead, ineffectual leadership, or selfish leaders have all rung the death-knell of such organizations.

Internal Organization and Operations

Successful associations have discovered that well organized committee systems which are not overlapped and which act in a coordinated manner are indispensable for effective civic associations. Organizations internally weak are often characterized by committees which are too large to function efficiently or too small to assume their work load fully. Where the association has several committees with no coordination among them, this failure leads to a duplication or overlapping of effort or to a lack of communication. The committees may suffer from either an extremely high rate of turnover of membership, or instead, from a stagnant committee membership which has lost its aggressiveness. Both conditions seriously impair the association in its planning and its operational activities.

Recruiting and Retaining Membership

Many associations have been wrecked as a result of their inability to develop effective recruitment or membership practices. Thus, where the membership is unrepresentative of the community, the association suffers chronically from the charge of being merely another interest group. Even where the group is representative, there may be a domination of membership-selection policies by a minority element. The effect of their conduct is often to sacrifice the effectiveness of the association in order to continue their control. This minority control in itself has been one of the greatest dangers which an association should avoid since factionalism always needs divided loyalty and thus weakens the efforts of the group.

Group effort must be appraised in terms of the total membership and the activities which such membership undertakes. In many associations there is a tendency for the activities to be shouldered by one man, or a few. One-man organizations, or minority-controlled groups, have in the history of associations tended to serve the ends of the leadership rather than those of the community, however benevolent the conduct of the leadership may appear.[3]

The problems arising in connection with membership are often the result of the membership-recruitment policy. An indiscriminate selection of members leads to the inclusion of undesirable persons. These persons may be undesirable because of their inability to work harmoniously within the organizational framework of the association. Whatever other reasons exist for this condition, care must be taken to exclude such persons.

In some communities, social, fraternal, economic, or other groups are in existence. Too often, these groups, desirable as they are by virtue of their membership or experience, are not recruited for the civic association. This is explained by a variety of reasons including the fear by the association leadership that such recruitment will bring about a membership which challenges their leadership, or by a fear that the enlarged association will dissipate its strength. The result is that valuable membership has been lost and the experience of such organizations has not been carried over for the benefit of the association.

Relationships between the Association and Governmental Agencies or Agents

Occasionally, the problem of membership is related to the problem of public agency domination. In a few instances where the public agency has been responsible for the origin of the association, or influential in developing the policies or goals of the group, the public agency may dominate or influence the membership selection, or the standards of the

[3] In one Philadelphia association the ward leader of the dominant political party periodically appears before each election campaign to explain how much he has accomplished for the association and then attributes his success to his party organization.

association. Too often public agency supervision has the preventive object of dominating group activities to shield the public embarrassment of the agency. On other occasions the object may have been to develop the association as a harmonious sounding board for agency policy.

Relationship Between the Association and the General Public

Finally, much attention needs to be devoted to the problems arising out of the relationship between the civic association and the public. One of the most common problems is the lack of communication between the association, the public, and the community. The group may encounter obstacles in achieving its goals if it has not oriented the public and the community to its objectives. Public misunderstanding, resentment, and active opposition are all outgrowths of this lack of communication. The ill effects of this lack of communication become obvious where, in order to succeed, the support of the masses of the citizens at the political level is required. If satisfactory efforts to inform the local citizenry have not been previously made, the civic association cannot gain its support, and it must necessarily operate as a narrowly-motivated pressure group. In doing so, the advantages of a broadly-based public interest group are lost.

CONCLUSION

The modern civic association has become the answer to the community's needs for a nonpolitical, broadly-based group. If it is to be effective, care must be taken to organize effectively. In addition to providing for proper quarters and satisfactory recruitment, promotional and goal-defining policies must be developed. The structure of the association must be organized to permit the effective formulation of internal procedures for crystallizing and achieving objectives. The success of the civic association is measured by the clarity of these objectives.

The manifold purposes which the association may achieve make it a much desired instrument for community living. The existence of the civic association as an effective force in the community results in achieving its long-range purpose—to make the community a better place in which to live, raise families, and enjoy available leisure or recreational time.

Depreciation and the Price Level

by JOHN C. RITCHIE, JR.*

The problem of replacing assets in the face of rising price levels has concerned business management since World War II. This has led to a reappraisal of the accounting concept of depreciation based on costs of acquisition, the subject of this article.

SINCE World War II there has been considerable argument concerning the point that net profits have been overstated because depreciation has been claimed only on original cost rather than replacement values. It is often argued by those in favor of a value theory that depreciation charges based on cost are unreal as they give no recognition to a fluctuating price level, and therefore do not provide adequate capital for the necessary replacement of assets to continue the business.

Frederick H. McDonald, in a recent article[1], made some sensational charges about the profits of American business, such as "false profits", "most gigantic hoax of our times", "deception", etc. In this connection he states,

> Large chunks (of profits) are being taken to replace worn-out machinery, equipment, and buildings in spite of annual statements which swear that "all required depreciation allowances have been made" for replacements.

Joseph Hock[2], in answer to this, points out that

> The C.P.A. reviews the Company's depreciation policies and if he satisfies himself that a reasonable allowance for depreciation has been made during the period under review and that the total amount accumulated for depreciation is adequate on the basis of a reasonable and orderly depreciation policy, no exception or qualification is made in his report. Rather than swear that all required depreciation allowances have been made for replacements, the C.P.A. would have to qualify his report if the allowance for depreciation was not based on the original cost of the depreciable assets which the firm owns.

THE DEPRECIATION ISSUE

Under present day accounting theory, certain expenses may not be charged against the profits of the year the expenditure is made, but must be allocated over the period which will benefit by the expenditure. There are numerous items in addition to depreciation which are allocated, such as, cost of materials not consumed, insurance and other deferred charges, leasehold improvements, and the like. Because depreciation is a sizable figure in most profit and loss statements, it may be taken as a prime example of costs charged against current income in dealer terms, the relative value of which may be substantially different from that at the time of acquisition. Following the economic theory of value, if these costs of equipment acquired in 1945 were charged off today, for example, in terms of acquisition costs, they would seriously understate the present value replacement cost of the machinery. On the other hand, if the values were related in current terms, they would so reduce current profits that they would be much less than those earned in the past.

Importance of the Issue

Abraham H. Spikly[3] states that the issue raised by the argument has a twofold purpose: "(1) employee relations and (2) reduction in taxes."

Labor unions have siezed upon the

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[1]Frederick H. McDonald, "Your Vanishing Profits," **Dun's Review**, Vol. 58, No. 7, July, 1950.

[2]Joseph R. Hock, "Original Cost Versus Market Value as Basis for Depreciation," **Dun's Review**, Vol. 58, No. 12, December, 1950, pp. 20-21, 48-52.

[3]Abraham H. Spikly, "Depreciation Based on Current Cost, Taxes," **The Tax Magazine**, V. 28, March, 1950, pp. 249-50.

high profits of corporations to show:

1. That business should be able to increase wages without increasing prices.
2. That wages have not kept pace with corporate profits and hence that labor is entitled to an increase.
3. That labor costs, even when increased by new demands, have no relationship to either high prices or high profits.

Public relations also are a factor in this situation since a segment of public opinion seems to hold that the earning of extraordinary profits is a moral sin—and a condition which will cause demand to be reduced, thus engaging a cumulative reaction leading from a declining production to falling employment, or, in other words, to recession.

Management also fears that financial statements may permit misunderstanding as to the profits available for distribution to stockholders. In view of current high tax rates and the public issue involved, it behooves companies to carefully consider the costs of doing business and the possibility that profits are being overstated because fixed costs such as depreciation do not reflect the effects of the increasing price level. In a period of low costs or a decreasing price level, this pressure would not be evident, and it is likely the issue would not be raised.

Replacement Costs,
A Basis for Depreciation

Today there are those who favor basing depreciation on current replacement costs so that charges will reflect fluctuations in price level. Those in favor of this theory argue that the purchasing value of the dollar has decreased, that revenues are stated in terms of impaired dollars, and that costs should be stated in the same relative terms. They hold that if this is not done, when it becomes necessary to replace buildings, machinery, and equipment acquired when the purchasing power of the dollar was greater, capital impairment will likely occur.

This capital impairment will arise because equipment which is wearing out must be repaired or replaced at current prices. The profits of the business which must supply the funds for this function do not include a charge to represent this rising price level and are therefore overstated. This leads to excessive dividends to stockholders based on overstated profits and taxes on profits not earned, thereby leaving insufficient retained funds in the business to meet financial requirements.

In furtherance of the foregoing arguments, it is stated that reporting depreciation on a value basis conforms to the last-in-first-out basis of inventory accounting which offers a method of excluding money profits resulting from the reduced purchasing power of the dollar in respect to inventories. The analogous argument is to the effect that stating depreciation on a value basis would likewise be matching current revenues with costs on a current dollar basis.

Money Income
vs. Economic Income

While agreeing that depreciation charges based on cost will enable one to measure adequately the money income of a business, Samuel J. Broad, a partner in Peat, Marwick, Mitchell & Co., New York, New York,[4], points out that economic income or the increased purchasing power of the business is not adequately measured in this manner. In view of this, he feels that the limitations or financial statements prepared in accordance with generally accepted accounting practices are greater today than they have ever been before. Mr. William Blackie, Vice President, Caterpillar Tractor Co., Peoria, Ill.[5], states the issue in even stronger terms as follows:

> While the results of conventional money accounting may be of some interest as the product of accountants,

[4]Samuel J. Broad, **National Association of Cost Accountants Conference Proceedings,** 1948, J. J. Little & Ives Company, New York, N. Y., p. 9.

[5]Ibid, p. 28.

by accountants, for accountants, they are of little or no value to the people who matter. For managerial purposes, accountants' statements must account for capital in the economic sense and not as money entrusted to a stewardship.

Financial Policy Confused With Accounting Procedure

Those taking exception to a value basis of depreciation point out in answer to the above arguments that there is no accounting relationship between the amortization of an existing asset and its ultimate replacement. Stephen Gilman points out that, "such replacement if, as, and when it occurs is a new, separate, and distinct undertaking."[6] It is his view that those favoring the value basis of depreciation are confusing financial policy with accounting procedure. He points out that the idea that the depreciation charge should provide for the replacement of plant facilities is based on a misconception of the nature of the charge which is, by definition, an allocation of cost, not a provision for future expenditure.[7]

Value Basis Differs From General Practice

Charles W. Smith[8] focuses attention on the fact that accounts are kept in terms of the standard currency of the nation. Accordingly, he feels that if an attempt is made by some process of accounting to depart from the stated quantum of dollars and to modify it because of the quality thereof, a procedure which is at variance with general business practices will have been adopted. Moreover, as accounting, in respect to determination of income, is a process of matching costs against revenues, he asks, how can one depart from the cost basis in respect to investment in capital goods any more than he could depart from it in respect to the purchase of other services.

Value Basis a Guessing Game

David R. Anderson[9], in his book **Practical Controllership,** attacks what is generally considered to be the basic weakness of a value theory of depreciation. He points out that the uncertainty as to the extent and duration of any change in price levels has been demonstrated by past experience, and that because of this uncertainty, no one has the capacity to foretell accurately the replacement costs of an asset at some future date.

It must also be remembered that no identical asset may be needed at the time when this asset is expected to wear out. Moreover, it may not be possible to purchase a comparable item if technology has advanced and the production of the equipment to be replaced has been discontinued. In view of this, it would seem that the basis for depreciation, if the replacement cost method were used, would become a guessing game not subject to check by an outside auditor. It is quite likely that costs would be charged to the profit and loss account which would never be incurred. Furthermore, Anderson states that the true value of any facility depends upon its earning power, hence there is no logical basis for adjusting the depreciation charge simply to reflect a change in price levels when the economic value in use is a much more important factor.

Depreciation as a Price Determinant

One further argument is offered by the advocates of a value basis of depreciation which even those who favor a cost basis seem to feel bears merit. If costs are used as a basis for determining selling prices, a depreciation charge sufficient to give an adequate profit margin must be used.

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[6]Stephen Gilman, **Accounting Concepts of Profit,** The Ronald Press Company, New York, 1939, p. 494.

[7]**Loc. cit.**

[8]Charles W. Smith, "Concepts of Depreciation For Fixed Assets," **The Journal of Accountancy,** Vol. 92, No. 2, August, 1951, pp. 166-174.

[9]David R. Anderson, **Practical Controllership,** Richard D. Irwin, Inc., Chicago, Illinois, 1949, p. 426.

> The consumption of fixed assets can be measured accurately for this purpose only by considering the depreciation charge as the expense of replacing service units consumed in production at current price levels. There is no justification for setting selling prices on the basis of costs incurred at low price levels which may have no reference to current or future consideration.[10]

While the soundness of this argument is granted by opponents of a value basis, they feel this can be handled as a cost accounting adjustment and should be located as a function of financial policy, not accounting procedure.

Some Suggested Solutions

Ray Anderson, Jr., of the Auto Parts & Supply Co. of Chattanooga, Tennessee,[11] suggests setting up a reserve for the replacement of assets to reflect the effects of changes in the price level, but allowing depreciation to remain a method of cost allocation. He points out that the incongruity of providing for the replacement of fixed assets at (currently) high costs by reflecting these higher costs in depreciation charges is noted when one considers a period when price levels are lower.

> If replacement costs were lower, would reduced depreciation costs be advocated, deferring allocation of cost over a period longer than the natural life of the asset? As this is not sound accounting nor logical, it seems the only tangible value that can be charged to depreciation is cost, as all other values are fictional.[12]

It should be admitted that what is wanted is a method for setting up reserves out of profits for replacing assets when they become worn out or obsolete, and to have the public educated in the need for such reserves. These reserves should not be confused with depreciation reserves and one should not resort to tricky bookkeeping or condemnation of the laymen for their ignorance of the propriety of or necessity for replacement reserves. Three things are suggested by Mr. Anderson to assist the accounting profession in ending this controversy:

1. Speak to business organizations, luncheon clubs, union conventions, etc., explaining the requirements and functions of C.P.A.'s, (done properly this will increase rather than decrease professional prestige and actually constitute a community service); it is an indisputable fact that corporate financial reports are mistrusted by many and misunderstood by most of the lay public.
2. Differentiate between depreciation and replacement reserves.
3. Indicate in reports an opinion as to the equitability of replacement reserve presentation, based upon examination of appraisal reports, catalog prices, bids, etc.[13]

In brief, the above can be reduced to a simple statement, "let's get to the heart of the matter, set up replacement reserves openly and let the public know why we are doing so.

Index Depreciation on adjusted original cost has also been suggested and seems the most likely solution to make available the information desired for financial management while still maintaining an objective basis for the measurement of income and minimizing the need for the use of subjective opinion. Depreciation charges based on original cost under this method would be converted to current dollars by means of a formula. Price index numbers would be established for each year on the basis of a norm, say 1939 or some other year or period of years. Plant and equipment would be analyzed according to the years in which the expenditures were made, going back a sufficient number of years to account for at least the bulk of the assets. The relative index figures would be used to convert the depreciation charges of each year's expen-

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[10] John J. W. Neuner, **Cost Accounting Principals and Practices**, Richard D. Irwin, Inc., Chicago, Ill., 1947, p. 747.

[11] Ray Anderson, Jr., "Set up Reserve for Replacing Assets, Let Depreciation Remain a Method of Cost Allocation," **The Journal of Accountancy**, Vol. 89, No. 4, April, 1950, pp. A-22 - A-24.

[12] **Loc. cit.**

[13] **Loc. cit.**

ditures into terms of the current year's dollar. Except for the establishment of reasonably reliable index figures, no difficult accounting or mathematical task is involved.

Policy Reaction of the Accounting Profession

The question of cost versus value in respect to depreciation accounting has been considered by the American Institute of Accountants, the American Accounting Association, and a group known as the Study Group on Business Income which is being financed by the American Institute of Accountants and the Rockefeller Foundation. The committee on accounting procedure of the American Institute of Accountants held to the cost basis.[14] It said,

> It is believed that accounting and financial reporting for general use will best be served by adhering to the generally accepted concept of depreciation on cost, at least until the dollar is stabilized at some level.

In the opinion of the committee,

> . . . consideration of radical changes in accepted accounting procedure should not be undertaken, at least until a stable price level would make it practicable for business as a whole to make the change at the same time.

The committee does give approval to annual appropriations of net income r surplus in contemplation of replacement of facilities at higher price levels, but such a charge must be separate and distinct from the depreciation charge. The American Accounting Association in its 1948 **Revision of Accounting Concepts and Standards Underlying Corporate Financial Statements**, likewise adhered to the cost basis. The Study Group on Business Income which is composed of accountants, economists, and others, has not announced any conclusion in the matter. In view of this, the C.P.A. when issuing a certificate must insist that depreciation charges be based on cost or take an exception in his certificate.

SUMMARY

In summing up the effects of the price level on present depreciation thinking, one can only conclude that the argument centers around the purpose of a depreciation reserve. Conventional accounting reflects money income, but when prices have changed rapidly, it may fail by a substantial margin to reflect economic income because some of the costs are measured in current dollars while other costs are measured in dollars of a different time and have, therefore, a considerably different value. Depreciation falls into this second catagory of costs.

While accounting has partially recognized the danger of overstated income because of profits arising as a result of increases in the price level by recognizing the "L.I.F.O." method for inventories, no corresponding adjustment has been approved for plant and equipment. Such an adjustment is desirable in income statements if they are to be as useful as possible, but most accountants object to arbitrary methods such as depreciation on replacement cost. Cost advocates answer that argument by pointing out that as equipment is used it must be replaced by similar equipment at higher prices, by asking should it not first be demonstrated that the equipment will actually be replaced, and second that the cost of the replacement will be current cost.

The method used to adjust the income statement for changes in the price level must be subject to objective measurement as is the cost basis for depreciation. As stated by Spikly[15], when accountants advocate fluctuating charges for depreciation, they are not only violating their own fundamental concepts but are treading on dangerous paths, the results of which digressions may have a serious effect on their profession.

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[14] **Accounting Research Bulletin**, No. 33, Issued by Committee on Accounting Procedure, American Institute of Accountants, 270 Madison Ave., N. Y. 16, N. Y., 1947, pp. 267-269.

[15] **Spikly, op. cit.**, pp. 249-250.